

## Claims

What is claimed is:

- 1           1.     A method for providing location-specific responses in an  
2 automated voice response system, said method comprising the steps of:  
3           receiving a microphone signal from each of a plurality of microphones;  
4           identifying a spoken command utilizing voice recognition responsive  
5 to each said received microphone signal;  
6           identifying a sound location vector responsive to each said identified  
7 spoken command; and  
8           providing a response command based upon said sound location  
9 vector.
- 1           2.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 1 wherein the step of  
3 receiving a microphone signal from each of a plurality of microphones  
4 includes the steps of digitizing said microphone signal from each of a  
5 plurality of microphones; and adding a clock signal to each said digitized  
6 microphone signal.
- 1           3.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 2 wherein the step of  
3 digitizing said microphone signal from each of a plurality of microphones  
4 includes the step of applying an analog audio signal from each of a plurality  
5 of microphones to a respective analog-to-digital converter (ADC) coupled to  
6 each of said plurality of microphones.
- 1           4.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 3 wherein the step of  
3 adding a clock signal to each said digitized microphone signal includes the  
4 step of applying a digitized audio signal from said respective analog-to-  
5 digital converter (ADC) to a clock adder for adding said clock signal.

1           5.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 1 wherein the step of  
3 identifying said spoken command utilizing said voice recognition responsive  
4 to said received microphone signal includes the steps of identifying a  
5 predefined first command word of predetermined spoken commands.

1           6.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 1 wherein the step of  
3 identifying said spoken command utilizing said voice recognition unit  
4 responsive to said received microphone signal includes the steps of  
5 identifying said received microphone signal for a predetermined person and  
6 identifying said spoken commands only from said identified predetermined  
7 person.

1           7.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 1 wherein the step of  
3 identifying said spoken command utilizing said voice recognition responsive  
4 to said received microphone signal includes the steps of storing a command  
5 start time  $T_0$ , a command length  $T_c$  for said identified spoken command and  
6 a channel number corresponding to one of said plurality of microphones  
7 utilizing said voice recognition.

1           8.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 7 wherein the step of  
3 identifying said sound location vector responsive to said identified spoken  
4 command includes the steps of performing digital signal analysis of said  
5 identified spoken command utilizing said command start time  $T_0$ , said  
6 command length  $T_c$  for said identified spoken command and said channel  
7 number.

1           9.     A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 8 wherein the step of  
3 identifying said sound location vector responsive to said identified spoken  
4 command includes the steps of performing digital signal analysis of each  
5 said identified spoken command for each said stored channel number.

1           10. A method for providing location-specific responses in an  
2 automated voice response system as recited in claim 1 wherein the step of  
3 providing said response command based upon said sound location vector  
4 includes the step of determining an intent of said identified spoken command  
5 utilizing said sound location vector.

1           11. A computer program product for providing location-specific  
2 responses in an automated voice response system including a processor,  
3 said computer program product including a plurality of computer executable  
4 instructions stored on a computer readable medium, wherein said  
5 instructions, when executed by a processor, cause the processor to perform  
6 the steps of:  
7           receiving a digitized audio signal from each of a plurality of  
8 microphones;  
9           utilizing voice recognition to identify a spoken command responsive to  
10 said received digitized microphone audio signal from each of a plurality of  
11 microphones;  
12           identifying a sound location vector responsive to each identified  
13 spoken command; and  
14           providing a response command based upon said sound location  
15 vector.

1           12. A computer program product for providing location-specific  
2 responses in an automated voice response system as recited in claim 11  
3 wherein said instructions, when executed by said processor, further cause  
4 the processor to perform the steps of storing a command start time  $T_0$ , a  
5 command length  $T_c$  for said identified spoken command and a channel  
6 number corresponding to an identified one of said plurality of microphones  
7 for each identified spoken command utilizing said voice recognition.

1           13. A computer program product for providing location-specific  
2 responses in an automated voice response system as recited in claim 12  
3 wherein said instructions, when executed by said processor, further cause  
4 the processor to perform the steps of performing digital signal analysis for  
5 each identified spoken command utilizing said stored command start time  $T_0$ ,  
6 command length  $T_c$  for said identified spoken command and said channel  
7 number of each identified one said plurality of microphones for each  
8 identified spoken command for identifying said sound location vector.

1           14. A computer program product for providing location-specific  
2 responses in an automated voice response system as recited in claim 12  
3 wherein said instructions, when executed by said processor, cause the  
4 processor to perform the steps of selecting one of a plurality of predefined  
5 response commands utilizing said sound location vector to provide said  
6 response command based upon said sound location vector.

1           15. Apparatus for providing location-specific responses in an  
2 automated voice response system comprising:  
3 a plurality of microphones located within a defined environment for  
4 receiving a sound within said environment and each of said plurality of  
5 microphones providing a microphone signal;  
6 a processor for identifying spoken commands responsive to each said  
7 microphone signal and for identifying a locational origin of said spoken  
8 command within said environment; and  
9 said processor for providing a response command based upon said  
10 identified locational origin of said spoken command within said environment.

1           16. Apparatus for providing location-specific responses in an  
2 automated voice response system as recited in claim 15 includes a  
3 respective analog-to-digital converter coupled to each of said plurality of  
4 microphones, each respective analog-to-digital converter receiving an  
5 analog audio signal and providing a digitized audio signal.

1           17. Apparatus for providing location-specific responses in an  
2 automated voice response system as recited in claim 16 includes a clock  
3 adder coupled to each said respective analog-to-digital converter for adding  
4 a clock signal to each said digitized audio signal.

1           18. Apparatus for providing location-specific responses in an  
2 automated voice response system as recited in claim 17 includes a  
3 respective voice recognition unit receiving each said digitized audio signal  
4 with said added clock signal; said voice recognition unit identifying said  
5 spoken commands; said processor retrieving said identified spoken  
6 commands from said respective voice recognition unit.

1           19. Apparatus for providing location-specific responses in an  
2 automated voice response system as recited in claim 18 includes a digital  
3 analysis unit utilizing said identified spoken commands from said respective  
4 voice recognition unit and identifying said locational origin of said spoken  
5 command within said environment; digital analysis unit applying said  
6 identified locational origin of said spoken command to said processor.

1           20. Apparatus for providing location-specific responses in an  
2 automated voice response system as recited in claim 19 wherein said  
3 processor selecting one of a plurality of predefined response commands  
4 utilizing said spoken command locational origin to provide said response  
5 command.